IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	09/846,766
Applicant	:	Talaric et al.
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Title	:	Molded Display Forms
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CERTIFICATE OF MAILING
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as Express Mail in an envelope addressed to: Mail Stop Amendment, Hon. Commissioner for Patents, PO Box 1450, Alexandria VA 22313-1450 – EV693 370 943US

Date: October 31, 2005

Stephanie Lotwis

DECLARATION OF JAMES D. BARBER
UNDER 37 C.F.R. 1.312

MAIL STOP AMENDMENT
Commissioner for Patents
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I, James D. Barber, state that I am a co-inventor, with James Talaric, of the above-captioned application.

I am Vice-President and a stockholder of Fusion Specialties, Inc., owner of the above-captioned application. I have been employed by Fusion Specialties, Inc. since the inception of its current operating business in 1986 and have 30 years of experience in the retail display industry.

This Declaration provides facts and data supporting the discovery by the inventors hereof of a previously unknown problem, namely that when attempting to manufacture a large, hollow molded article like a mannequin, with a uniform color throughout the material, it is not possible to simply add the desired pigment to the material entering the mold (the polymer mix) without significantly degrading the physical properties of the molded article.

My previous Declaration of October 22, 2001, showed that there was a long felt need in the art for retail mannequins and other display forms having a uniform color throughout. This previous Declaration is incorporated herein by reference. My company, Fusion Specialties, Inc., the Assignee of the present application, was the first, and so far the only company to manufacture mannequins having a uniform color throughout the material, so that they do not have to be painted, and do not show a different color when chipped.

It is well known to the art of mannequin manufacture that mannequins must have an izod impact energy (a measure of non-brittleness) at least about 2 ft.lb./sq. in. Before we made this invention, we were using a polymer mix formula to which pigment had not been added that gave us physical properties suitable for finished mannequins. Such physical properties include izod impact energy, 5% stress and flexural modulus over a range of temperatures, linear burn rate and resistance to thermal aging and deformation.

Izod impact energy is the energy necessary to break a sample using a controlled medium velocity impact. It is thus a measure of brittleness. The standard test used to measure this property was ASTM D 256-97, Izod Impact (Method A). A small notch is made in the specimen. Notches increase the local stress level, typically producing brittle failure in some polymers, and act as stress concentrators, creating weaknesses. They are common (though undesired) features in molded parts. This test is similar to what happens when a part is dropped on a hard floor. High values correspond to tough materials that can have molded inserts and designs that include sharp square corners and notches that might easily cause breakage if the material is too brittle. For mannequins, an izod impact energy of greater than about 2 ft.lb./sq.in. is desirable.

Flexural Properties (flexural stress and flexural modulus) determine how well the material resists bending. Good flexural properties mean the molded article will have good load-bearing characteristics. The test used to measure this

property was ASTM D 790-99, a low velocity test that directly measures the resistance of a material to bending. The flexural stress at 5% is the amount of force necessary to bend the sample 5% of its thickness. The flexural modulus of the material is also calculated at this deflection. This deflection is intended to be relatively small so that when the force is removed, the part returns to its original shape. This test is useful for ranking the resistance of materials to loads while they still retain their shape. The flexural properties were measured at room temperature and at 110° F. A low number indicates the article will not retain its shape well when subjected to pressure at the given temperature. The flexural stress should be at least 800 psi only at the higher temperature, as a minimum. Room temperature would be higher anyway. The flexural modulus should ideally be at least 50,000 to about 100,000 psi at room temperature and at least about 20,000 to 60,000 psi at temperatures of 100° F.

The linear burn rate test measures the rate at which a material burns horizontally. The test used to measure this property was ASTM D 635-98. A low number is more desirable as it indicates a less flammable material, while a high number indicates that the material burns easily.

Thermal aging and deformation properties are important for mannequins that are subjected to variations in temperature while being displayed for long periods of time. Two tests were conducted. Test A was a cyclic aging test. In this procedure the mannequins were subjected to 32 ° F for six hours and then subjected to 120 ° F for six hours. This cycle was repeated every 12 hours for 21 days (42 cycles). In Test B the samples were subjected to a constant temperature environment of 120 ° F for 21 days. In both tests the samples were upright (supported by a stand) and measurements were taken before and after exposure.

The results of these tests are shown in Table 1.

TABLE 1

Formula	Izod Impact Energy	Flex at Room Temp.		Flex at 110 °F		Linear Burn Rate
		5% Stress psi	Flexural Modulus psi	5% Stress psi	Flexural Modulus psi	
Uncolored original	2.46	1,932	75,700	1,240	39,200	39
Uncolored original with added pigment	0.67	5,020	170,200	670	39,000	87
This invention	2.75	2,014	80,800	1,030	39,000	19

In addition, in the thermal aging and deformation tests, articles made from all three formulas maintained their shape well at the constant temperature. Articles made in accordance with this invention showed negligible deformation in the cyclic test, while articles made from both the original uncolored formula and the uncolored formula with added pigment showed increased deformation.

It can be seen from the foregoing results that addition of pigment to the original formula caused a substantial deterioration in izod impact energy, and that after adjustment of the formula, as described in this invention, the izod impact energy returned to acceptable values. Flexural stress and flexural modulus remained within acceptable levels at room temperature for all three formulas, but flexural stress at 110° F degraded below acceptable levels when pigment was added to the original formula, and was raised to acceptable levels with the formula of this invention. Flexible modulus at 110° F remained within acceptable levels for all formulas, but burn rate greatly increased when pigment was added

to the original formula, and then returned to a lower, more acceptable level with the formula of this invention. In addition, deformation under cyclic temperature conditions remained negligible with articles made from the formula of this invention, while deformation was increased both with the original uncolored formula and with the original formula with pigment added..

These results show that Applicants discovered a serious problem, namely degradation of important physical properties of the molded articles when attempting to make hollow molded mannequins having a uniform color throughout by simply adding pigment to an original formula lacking pigment that had resulted in articles having acceptable physical properties. After adjustment of the formula, to the formula of this invention, the physical properties that had degraded returned to acceptable levels and other important physical properties were retained.

I also state that I have read the disclosure of Graefe Patent No. 5,002,475, and this patent does not disclose a process that would be useful for molding a hollow article as is claimed herein. Graefe discloses an injection molding process. It is not possible using an injection molding process to mold a hollow article like those claimed herein. "Hollow" objects of this invention have a void volume completely surrounded by the outer shell of the article. While It is possible to separately mold two halves of a hollow object using injection molding and then glue them together to form the hollow object, it is not possible to actually mold a hollow object by injection molding, a process in which a polymer mix is injected into a mold to fill or partially fill the mold. A process such as the cold rotational molding process described in the present invention is required to coat the inner surfaces of the mold, leaving a hollow void in the center. The teachings of Graefe are therefore irrelevant to the present invention.

All statements made herein of my own knowledge are true, and all statements made on information and belief are believed to be true; and further these statements are made with knowledge that willful false statements, and the like so made are punishable by fine or imprisonment or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

9.29.2005

DATE

James D. Barber

JAMES D. BARBER